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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,630	03/17/2004	Evert Van Der Heide	TS-1343 (US) JDA:KNL	4920
23632	7590	03/27/2006	EXAMINER	
SHELL OIL COMPANY P O BOX 2463 HOUSTON, TX 772522463			PRICE, ELVIS O	
			ART UNIT	PAPER NUMBER
			1621	
DATE MAILED: 03/27/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/802,630

Applicant(s)

VAN DER HEIDE ET AL.

Examiner

Elvis O. Price

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,9 and 10 is/are rejected.
- 7) ☒ Claim(s) 3 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                                     |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/04;9/04;9/05</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

### **DETAILED ACTION**

Claims 1-10 are pending in the application.

#### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Information Disclosure Statement***

The information disclosure statements comply with the provisions of 37 CFR 1.97, 1.98 and MPEP02 § 609. They have been placed in the application file, and the information referred to therein have been considered as to the merits.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 4-7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lester {GB 2098985 A}, in view of Kawabe et al. {US Pat. 6,187,972 B1} and further in view of De Jonge et al. {WO 03/042152}.

Lester teaches a process for the preparation of alkylene glycols comprising, (1) reacting an alkylene oxide with carbon monoxide in the presence of a homogeneous catalyst and in the substantial absence of water to obtain a first reaction mixture comprising the corresponding alkylene carbonate, and (2) contacting the first reaction mixture with water in the presence of a catalyst to obtain a second reaction mixture comprising the corresponding alkylene glycol and carbon dioxide (see page 1, lines 26-37 and Examples). The difference from the presently claimed invention and the Lester invention is that Lester is silent with regard to the amount of alkylene oxide (or propylene oxide) present in the second reaction step and Lester does not teach using a heterogeneous catalyst in the second reaction step. Additionally, Lester does not specifically recite preparing a propylene glycol but rather ethylene glycol. However, given that 60% to 99% of the propylene oxide is converted in the first reaction step, as presently claimed by applicants, it would not be unreasonable for one having ordinary skill in the art to expect that at least 1% of the alkylene oxide from the first reaction in the Lester invention remained unconverted.

Additionally, Kawabe et al. demonstrate that alkylene glycols in general, including propylene glycol, can be prepared from the same material method as taught by Lester by teaching the production of alkylene glycols (including propylene glycol) from an alkylene carbonate intermediate, which is obtained via the reaction of the corresponding

alkylene oxides and carbon dioxide (see reaction sequence on col. 4 and claim 6, where propylene carbonate is mentioned).

Also, De Jonge et al. teach a process in which an alkylene carbonate (inclusive of propylene carbonate) is hydrolyzed, in the presence of water and a heterogeneous catalyst, to obtain the corresponding alkylene glycol (e.g., propylene glycol) (see pg. 2, lines 17-26; pg. 5, lines 11-24 and pg. 14, lines 9-18).

It would have been *prima facie* obvious to one having ordinary skill in the art, in view of the teachings of the Lester, Kawabe et al. and De Jonge et al. references, to arrive at the presently claimed invention because Lester teach a similar process for preparing alkylene glycols while Kawabe et al. teach that propylene glycol can be obtained from the same general process taught by Lester and De Jonge et al. teach that propylene carbonate can be converted to propylene glycol using a heterogeneous catalyst.

One having ordinary skill in the art, desiring to arrive at other alternative methods for preparing propylene glycol, which could be utilized to prepare polyesters, would have been motivated to start out with propylene oxide instead of ethylene oxide, while carrying out the first step of the Lester invention followed by implementing the heterogeneous catalyst, used by De Jonge et al., into the second step disclosed by Lester. One having ordinary skill in the art would have been additionally motivated, when considering the relative ease of separating heterogeneous catalysts versus homogeneous catalysts from reaction mixtures, to substitute the De Jonge et al. heterogeneous catalyst into the second reaction step taught by Lester. Therefore the

presently claimed invention would have been obvious to one having ordinary skill in the art.

***Allowable Subject Matter***

Claims 3 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elvis O. Price whose telephone number is 571 272-0644. The examiner can normally be reached on 8:30 am to 5:00 pm; Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571 272-0646. The fax phone numbers for the organization where this application or proceeding is assigned is 571 272-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-1235.

A handwritten signature in black ink, appearing to read 'Elvis O. Price', with a stylized, cursive script.

Elvis O. Price

March 17, 2006